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DIFFICULTIES ASSOCIATED WITH RESEARCH ON FOREIGN LANGUAGE
LEARNING.

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PSYCHOLOGISTS, LANGUAGE TEACHERS,

RESEARCH HAS NOT YET YIELDED CONCLUSIVE EVIDENCE TO
PROVE THE SUPERIORITY OF THE AUDIOLINGUAL APPROACH TO
LANGUAGE TEACHING OVER THE TRADITIONAL, GRAMMAR-TRANSLATION
METHOD. COLLABORATION ON EXPERIMENTATION BY TRAINED
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AND USEFUL DATA NEEDED TO MAKE RATIONAL DECISIONS ABOUT
IMPROVING LANGUAGE INSTRUCTION. IN NEED OF FURTHER
EXPLORATION ARE SUCH COURSES AS "PROGRAMED RUSSIAN COURSE,
DEVELOPED AT INDIANA UNIVERSITY, WHICH IS SIMILAR IN CONTENT
TO MANY FIRST SEMESTER COLLEGE COURSES, AND COMBINES
AUDIOLINGUAL AND TRADITIONAL TEACHING TECHNIQUES. THIS
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DIFFICULTIES ASSOCIATED WITH RESEARCH ON FOREIGN LANGUAGE LEARNING

(Editor's note: The following was a telelecture transmitted from Indiana University on February 25, 1966, to six regional workshops in Oregon. It is reproduced from the Oregon Spectrum of May 1966.)

I think most of you know that I am not a language teacher. But I am very much interested in language teaching and learning. I am an experimental psychologist who wishes to help in the search for solutions to some of the problems you come face to face with in performing your everyday duties as language teachers.

I wish that I could tell you that my purpose in talking to you today was to describe some of the solutions that I had found to the complex problems of language teaching and language learning. But I can't! I haven't found any solutions yet! All I've found, after several years of searching in my own laboratory, are more problems. But, apparently I am in good company. As far as I can tell from reading the literature, other workers in the field, taken as a group, have been finding out about the same thing: not very much. This is not to say that experimenters have not been experimenting or that thinkers have not been thinking and writing. But the results of one experimenter's efforts, when they are not equivocal, are nevertheless, usually cancelled out by the findings of another experimenter. And the opinions and arguments of one thinker are typically counterbalanced by the contrary views of another thinker as soon as they appear in print. So, to those of you who might have expected to hear from me some final or conclusive answers to important questions dealing with the learning and the teaching of foreign languages, I offer my sincere regrets. I offer also this admonition: Beware the merchant who has information to sell concerning the teaching of foreign languages. It is my strongly held conviction that almost every bit of advice that is offered to language teachers today about how to teach their languages effectively should be listened to very critically, and accepted, if accepted at all, only with great caution. Although many

different groups of people, including experienced language teachers, like most of you, and interested but inexperienced outsiders, like me, have strong personal opinions on how to teach second languages, there is little included among the bits of gratuitous advice that is other than unsubstantiated, subjective collections of contradictory and ambiguous generalities. No one, not the experienced language teacher, not the erudite linguist, not the experimental psychologist, not the professor of education, not the producer of language-learning records, and not the for-hire native tutor, no one today knows the best way to teach foreign languages. The data upon which decisions about procedural rules could be based have not been collected, or they are inconclusive. Therefore, almost every single statement that is made today which contains advice as to the proper, or the correct, or the best way to teach foreign languages, regardless of how sensible the statement might appear to be, must be only an unproven assumption or an untested allegation and, therefore, quite possibly, wrong. For example, statements like the following ones, which appear to contain sensible procedural advice are not backed by unequivocal supporting experimental data and they may, therefore, be encouraging the adoption of procedures which are no better than, if equal in effectiveness to, the procedures they will replace. Rules such as: (1) teach spoken language in dialogue form; (2) use graphic symbols for sounds only after the sounds are thoroughly learned; and (3) study vocabulary only in context. I repeat. Rules like the ones I have just cited are not necessarily wrong--but neither are they necessarily right. Whether they are right or wrong is just not known; the evidence for deciding is not yet available.

Let me illustrate this absence of conclusive data by describing in some detail the status of our knowledge concerning one of the most actively discussed issues in the field of second language learning today. The problem has been stated in many different forms, as, for example: Does aural learning facilitate visual learning? or should items of a foreign language be presented in spoken form before written form? or should the printed or written symbol be withheld from students in the early stages of learning a

foreign language? or should the spoken language be emphasized over the written language, especially early in foreign language learning? This problem was clearly recognized as an important one in 1957 by William Riley Parker, now a Distinguished Service Professor at Indiana University and at that time, the Executive Secretary of the Modern Language Association of America, in his second edition of the Discussion Guide and Work Paper¹ which was entitled The National Interest and Foreign Languages and which was sponsored by the U. S. National Commission for UNESCO, Department of State. In that work paper, under the section titled: Questions Awaiting Answers, the first question that Professor Parker listed was: "Should the Spoken Language be Emphasized?" He started his comments concerning the question as follows: "This (question) is today one of the liveliest issues in language instruction. If a majority of informed citizens have an opinion, they should make it heard. Teachers are still divided in theirs.... The issue is a new one only insofar as new factors have increased its intensity; American education has had for the past century enthusiastic advocates of the Phonetic (Victor) or Natural (Sauveur) or Direct (Walter) method of language instruction, although at every stage these teachers have been a distinct minority. The linguistic scientists, also a minority group, are among current advocates of the aural-oral approach. Very recently the Steering Committee for the Foreign Language Program of the Modern Language Association of America declared to the whole profession: 'The elementary language course at all levels, from elementary school through college, should concentrate at the beginning upon the learner's hearing and speaking the foreign tongue.... Throughout later stages, in lectures and in class discussions of literature and civilization, students should be provided with frequent opportunities for maintaining the hearing and speaking skills thus early acquired.'"

Granting that the problem in 1957 was, in Professor Parker's own words, "one of the liveliest issues in language instruction" and agreeing with him that the "issue is a new one only insofar as new factors have increased its intensity," it might appear to some to be somewhat surprising that in the next

edition of the work paper,² which appeared four years later in 1961 the first question that Professor Parker raised under the heading: Questions Awaiting Answers is the identical question: "Should the Spoken Language be Emphasized?" During that period between 1957 and 1961, a period during which there was a tremendous upsurge of interest in and study of foreign languages due mostly to the passage of the NDEA OF 1958, there was no clear-cut answer provided to this number one question. And, I might point out here that in 1966 the situation is still about the same. It is still one of the liveliest, but unresolved issues in language instruction.

The question of the early emphasis of spoken as opposed to written language is, of course, only one aspect of the larger controversy between the new audio-lingual approach and the traditional grammar-translation approach. Professor John Carroll of Harvard University, a distinguished psychologist who has devoted his great talents as a research, educator, linguist, and writer for many years to the problems of language teaching and language learning, in a paper read at the International Conference on Modern Foreign Language Teaching in Berlin in 1964 spoke about this issue in the following way:³ "Examination of the practices of foreign language teachers and the writings of several theorists suggest that there are today two major theories of foreign language learning. One may be called the audio-lingual habit theory, the other, the cognitive code-learning theory. The audio-lingual habit theory, which is more or less the 'official' theory of the reform movement in foreign language teaching in the United States of America, has the following principal ideas: (1) that since speech is primary and writing is secondary, the habits to be learned must be learned first-of-all as auditory discrimination responses and speech responses; (2) that habits must be automatized as much as possible so that they can be called forth without conscious attention; (3) that the automatization of habits occurs chiefly by practice; that is, by repetition. The audio-lingual habit theory has given rise to a great many practices in language teaching: the language laboratory, the structural drill, the mimicry-memo-

rization technique, and so forth. The cognitive code-learning theory, on the other hand, may be thought of as a modified, up-to-date grammar translation theory. According to this theory, learning a language is a process of acquiring conscious control of the phonological, grammatical, and lexical patterns of a second language, largely through study and analysis of these patterns as a body of knowledge. The theory attaches more importance to the learner's understanding of the structure of the foreign language than to his facility in using that structure, since it is believed that, provided the student has a proper degree of cognitive control over the structures of the language, facility will develop automatically with use of the language in meaningful situations.... The two theories represent rather fundamental differences in teaching method and style that show up in the way textbooks are written and foreign language courses are taught. We need information on which of these theories is a better basis for foreign language teaching." We need to know, among other things, the answer to Professor Parker's questions: "Should the spoken language be emphasized?"

The researcher who desires to answer this question has several courses of action open to him. One could be to set up a well-controlled, small-scale laboratory experiment designed to yield results which could be generalized to the classroom situation. Another would be to conduct a comparative survey and evaluation of ongoing classes, including in the sample some classes that were being taught by each of the two kinds of procedures. And a third way to approach the problem would be to set up a large-scale, well-controlled experiment where different groups of students in the classroom setting would be taught by one or the other of the two methods.

As it happens, our problem has already been attacked by each one of these methods. Let me describe some of these attempts. First, the laboratory attack. In 1959 Kessman,⁴ using high school students as his subjects, compared the speed with

which they could learn to write responses and then learn to say them with the speed with which they could learn to say them and then learn to write them. The learning material was a list of seven paired associates consisted of a two- or three-syllable common English word and a meaningless, five-letter paralog. The paralog were intended to simulate foreign words. Each one contained five letters, the first, third, and fifth of which were consonants, the second and fourth, vowels. For example, the paralog NOKAM was paired with the English word READY, and the paralog TIFEB was paired with the English word YELLOW.

Every subject had to learn that list both ways. One group learned first to make their responses orally and then in writing while the other group learned to make their responses in writing first and then orally. Half the subjects in each group had to learn to give the English responses to the paralog and the other half had to learn to give paralog responses to the English words. The score for each subject was the total number of trials required to learn to make all the paired responses both orally and in writing. Kessman's results showed that when the subjects were required to learn to make paralog responses to the English words, the paralog responses were learned significantly faster in the writing-speaking sequence than in the speaking-writing sequence; but when the subjects were required to learn to make English responses to paralog, the English responses were learned faster in the speaking-writing sequence than in the writing-speaking sequence. This was true whether the items were presented visually or orally. So the answer to the question: Which order is superior, the spoken-written sequence or the written-spoken sequence, depends on what kind of responses are being learned, foreign or English.

A similar experiment, performed by Pimsleur and Bonkowski¹⁵ in 1961, also involved the use of a short list of paired associates, English words and paralog. However, unlike Kessman, they required all of their subjects to write their responses and the responses were always the English words, never the paralog. They compared an auditory-visual presenta-

tion sequence with a visual-auditory sequence and found the auditory-visual sequence to be superior. However, in a repetition of the experiment in 1964, Pinsleur and his co-workers⁶ could not duplicate their earlier findings and concluded that there was no difference between the auditory-visual sequence and the visual-auditory sequence.

A more elaborate set of studies, performed in 1964 by Asher,⁷ also attacked the same problem. But Asher had his subjects learn several lists of paired associates, rather than one list. There were 96 pairs of words in all, including most parts of speech: nouns, pronouns, verbs, adjectives, adverbs, prepositions, and conjunctions. In addition to measuring the speed of learning the lists, Asher also measured the ability of his subjects to use the words in translating sentences and stories. He also measured retention of the material after delay periods of 48 and 96 hours. He used pictures as well as English words and paired them with foreign words, rather than paralogues. He used Spanish, Japanese, and Russian words in separate repetitions of the experiment. Asher's primary concern was comparing the visual-auditory presentation sequence with the auditory-visual sequence. His subjects always wrote their foreign response words to visual presentations and always spoke their foreign response words to auditory presentations. Asher found that the visual-auditory sequence was superior to the auditory-visual sequence for Spanish and Japanese words. But there was no significant difference between the two sequences for the Russian words. These results, taken together with the results of the Kessmen and Pimsleur studies, do not make for a very clear picture. As a matter of fact, the discrepancies between the findings of these studies make it impossible to extract any dependable advice for language teachers as regards the optimal procedures in the classroom. The teacher who believes that all new language material should first be presented orally and that visual or written materials should be withheld until the auditory learning is complete need not be discouraged by the results of these studies. He need not alter his belief that the procedures will produce better pro-

nunciation by avoiding interference from the already existent English sound-symbol associations. And, likewise, the teacher who disagrees with that position and feels that his students want to see and should be allowed to see the graphic symbols as soon as the sounds are presented need not be discouraged either. The data are certainly inconclusive.

But even if the results were all in agreement, there would still be great doubt as to the relevance of the research for classroom application. Carroll has pointed out in his extremely valuable chapter in The Handbook of Research on Teaching, published in 1963 by Rand McNally, that "the dimensions of foreign language vocabulary learning are usually vastly different from those of psychological experiments; whereas a psychological experiment may involve the learning of a list of 20 paired associates to a criterion in a single setting, the acquisition of a foreign language vocabulary is a question of gradual increments over a long period of time until thousands or tens of thousands of items have been mastered. Rarely has laboratory experimentation provided any reasonable simulation of the dimensions of foreign language vocabulary learning. For all these reasons it is necessary to use much caution in generalizing from paired-associate laboratory experiments to actual language teaching."

Asher⁷ similarly provides a note of caution in his report. "Psychological experiments in verbal learning with either nonsense syllables or natural languages have usually been evaluated by linguists as non-representative of language learning because of excessive simplification.... The reductionism of natural languages to one-word units, while achieving better experimental control, may have eliminated complexities which are the essence of language learning such as phonology, morphology, and syntax. It may be that this reductionism produces a learning task which has little in common with language learning. If so, then inferences based on such data certainly should only be considered as suggestive rather than definitive."

So we may conclude that our first method for finding answers to important questions about the optimal techniques for teaching foreign languages, the small-scale laboratory experiment, leaves quite a bit to be desired. How about the second method: the survey or comparison of results obtained in regular classes that are being taught with different procedures? In 1948, Agard, a linguist and language teacher, and Dunkel, an educational research specialist, published the results of such a survey.⁹ They attempted to compare classes that were taught by the then conventional approach which did not stress the spoken language, on the one hand, with classes that were taught with an emphasis on the spoken language, on the other hand. The investigators did not attempt to match groups or to control variables. It was hoped that by using a large sample of high schools and colleges the uncontrolled variables would balance or cancel each other out. Cooperating schools and colleges administered specially created, but probably highly inadequate, reading, writing, listening, and speaking tests in French, German, Russian, and Spanish in order to provide a gross evaluation of the two different teaching methods. The following are some of the findings of the survey which were presented with the realization that the inadequacies of the controls and the lack of reliability of the measuring devices cast doubt on their veracity:

1. The audio-lingual courses generally failed to produce in one or two years' time students with anything resembling what could be called near-native speaking or reading proficiency. None of the students could talk on unrehearsed topics without constant and painful hesitation.
2. The majority of audio-lingual students were better at speaking than the conventional students who were taught to speak by pronunciation rules and who never heard a native speaker.
3. The conventional students demonstrated a higher level of reading proficiency than the audio-lingual students.

Agard and Dunkel⁹ concluded that "there is still a need for experiments designed to test, one by one, in carefully controlled situations, these fundamental problems which confront the language teacher in his search for perfection. We might add here that in 1966 there is still the need.

The third method for finding answers to important questions about teaching methods is the well-controlled experiment performed in the classroom setting. One such experiment, I am pleased to relate, was recently completed in Colorado. I am referring to the monumental effort of George A. C. Scherer and Michael Wertheimer.¹⁰ Scherer was Professor of German and Wertheimer is a Professor of Psychology at the University of Colorado. In the spring of 1960 Scherer applied to the Research Unit of the Language Development Program of Title VI of the National Defense Education Act, U. S. Office of Education, for a contract to conduct a fairly large-scale controlled experiment. The contract was granted and a two-year experiment was initiated in the fall of 1960. The main purpose of the experiment which was titled Extended Classroom Experimentation with Varied Sequencing of Four Skills in German Instruction was to compare our two familiar techniques for teaching foreign languages, the audio-lingual method and the traditional grammar-reading method. Despite the fact that I am a psychologist, I have to admit that this very respectable interdisciplinary attack of this important language learning problem was initiated by the language professor on the team and not by the psychology professor. As the authors point out in the preface of the book which describes the study, "The original conception and design of this study, as well as the application for the grant which made it possible, were the responsibility of George A. C. Scherer; he also served as general director and coordinator of the project. Michael Wertheimer was originally brought in as a consultant on experimental design and psychological tests. As the study progressed, he became more deeply involved and was primarily responsible for the design and scoring of the objective and subjective tests.... He also designed and supervised the statistical analyses. The final manuscript was prepared

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jointly." The report was published by McGraw-Hill in 1964 under the title: A Psycho-linguistic Experiment in Foreign Language Teaching.

The authors felt that it would be very useful to learn whether at the end of two years of instruction the reading and writing skills of the students who were trained by the audio-lingual method would equal or perhaps surpass those skills of the students who were trained by the traditional grammar-reading method. The authors felt that if it could be shown that the audio-lingually trained students were as good as or better than the traditionally trained students in the performance of those skills which are emphasized by the traditional grammar-reading procedure, then they would have clear-cut evidence for the superiority of the audio-lingual method, provided of course that the audio-lingually trained students excelled also in auditory comprehension and speaking, the skills which are emphasized by the audio-lingual procedure. The experiment was designed to be conducted within the realistic setting of an educational program. Accordingly, all the beginning students of German at the University of Colorado in the fall of 1960 were enlisted as the subjects in the experiment. Almost 300 students were thus randomly assigned to sections to be taught by the two methods. There were seven sections taught by the audio-lingual method and six by the traditional method. The traditional sections were given reading material right from the start of the experiment. The audio-lingual sections were not given any reading material for the first 12 weeks. Time prevents me from detailing the fantastic amounts of time and energy that were devoted to planning and implementing the study in order to maintain the necessary controls of a properly designed experiment. Although they were not completely successful in this regard despite their Herculean efforts, they were, nevertheless, justified in drawing the following conclusions from their land-mark study:

"In listening, the audio-lingual students were far superior to the traditional students at the end of the first year, but this difference disappeared by the end of the second. In speaking, the audio-

lingual students were far superior at the end of the first year and maintained their superiority throughout the second. In reading, the traditional students' ability exceeded that of the audio-lingual students at the end of the first year, but the difference disappeared during the second year. In writing, the traditional students were better at the end of the first year and maintained their superiority during the second. In German-to-English translation, the traditional students were far superior at the end of the first year and maintained their superiority during the second. In English-to-German translation, finally, the traditional students were much better at the end of the first year, but this difference disappeared by the end of the second.

"Overall, then, the end of the first year saw the audio-lingual students better in listening and speaking, but worse in reading, writing, and both kinds of translation. At the end of the second year, the audio-lingual students were still better in speaking, but poorer in writing and German-to-English translation; they were not different in listening, reading, or English-to-German translation. The fact that the experimental group was generally superior in some skills but that the control group was superior in others shows that one of the main original hypotheses was not confirmed--the audio-lingual group, while it did occasionally reach, never did surpass the traditional group in reading, writing, and translation during the two years of the experiment. A combination score, weighting audio-lingual and non-audio-lingual skills equally, was computed to assess any grand total differences; the two groups were not significantly different in this overall-proficiency index at the end of any of the four semesters."

It may appear that this study by Scherer and Wertheimer has provided the answer for which we have been searching, the answer being that neither the audio-lingual method nor the traditional grammar method is superior for all aspects of the complex foreign language learning process. But if this is the answer, what practical advice can be given to the language teacher about choosing between these two

techniques for classroom use? About all that can be said is that it doesn't really matter which technique is used; both have their virtues and their failings; one's choice depends on the goals one wishes to emphasize. But, even this advice must be qualified. One reason is that the audio-lingual method is not composed of a single, clearly identified, standardized set of procedures and neither is the traditional-reading method. Each one encompasses many different combinations of practices. It is obvious, therefore, that many modifications could be made of the audio-lingual procedure used by Scherer and Wertheimer, and of their traditional procedure as well. And another two-year experiment would have to be run to see whether these changes in the procedures would produce changes in the findings. A slightly different version of the audio-lingual procedures might support the hypothesis which their original procedure failed to support, the hypothesis that the audio-lingually trained group would surpass the traditionally trained group not only in the listening and speaking skills but in the reading, writing, and translating skills also. And if these modified procedures failed also, then another set of modifications could be tried, and another. In other words, it is impossible to get from one experiment, however well conceived and carried out, a definitive and conclusive answer to the question of the relative effectiveness of the two complex procedures. There are too many different forms of the audio-lingual method and too many different forms of the traditional method to make all the comparisons without a long series of studies. In the end, the final conclusions might not be changed, but at the present time we can only guess at those conclusions. At the present time we have the results of a comparison of only one form of the audio-lingual method with only one form of the traditional method. Defenders on neither side of the issue should give up at this point.

Another reason for the need to qualify our interpretations of the findings of the Scherer and Wertheimer study is that despite their attempts to use a large sample of students, by the time they completed their final tests there were less than three quarters of

the original group still involved in the study. The subjects withdrew from the experiment for a great variety of legitimate reasons, but it is difficult to assess what the effects of their departure were on the outcome of the study. What started out as an experiment with approximately 300 students ended up two years later with complete scores on less than 50 students.

So, despite several laboratory studies, despite an extensive survey, and despite an admirable classroom experiment, we are still without a clear-cut answer to our original question about the relative-ness of the audio-lingual and the traditional methods. Conclusive answers will be available only after many more studies like the Scherer and Wertheimer study. But I would like to point out one virtue to this rather discouraging state of affairs. If the one best way to teach foreign languages is not yet known--if indeed it turns out that there is a one best way for all languages, for all students of all ages and abilities--which is not very likely, then you, as language teachers, are now free to teach any way that you want to. Your way may turn out to be the best way.

Now, before I leave the issue of the audio-lingual vs. the traditional method of language teaching, and in the absence of supporting data, I would like to offer you some gratuitous advice. I feel entitled to do so since I have already spent a good deal of time warning you about how to receive it. The advice is in the form of a simple guiding principle. The principle is this: Teach your students what you want them to learn. If you want them to learn to speak only, then teach them speaking. If you want them to learn to read only, then teach them reading. If you want them to learn both, teach them both. The issue of which one to teach first is not an important issue as long as you do teach both. It is important only when you don't have time for both and the one that is supposed to be second is never taught at all. Years ago, under the grammar-translation system, a major complaint about our language students was that they could not speak the foreign languages they had

studied. But that should not have been surprising. The students were not being taught to speak. Today, after a few years of the audio-lingual ogue, the complaints are starting to be heard: the students can't write or spell in the foreign languages, which should not be surprising either. However, I will find it surprising if the eventual solution to this problem does not turn out to be a middle-of-the-road compromise, a combination of both the audio-lingual and the grammar-translation methods.

We have looked at three different ways of getting answers to questions about language learning techniques: (1) the restricted, well-controlled laboratory experiment; (2) the general survey and comparison of ongoing language classes; and (3) the controlled, large classroom experiment. Each method has its difficulties. The laboratory experiment is usually completely irrelevant to the classroom teaching situation. The comparative survey is typically too loosely designed and controlled to permit very meaningful assessment of the findings. And the large-class experiment is extremely difficult and time consuming properly. But there is no doubt in my mind that of the three methods the classroom experiment constitutes the best source of reliable and useful data. Unfortunately, at the present time there aren't very many useful findings for the language teacher to use. Most of the classroom experiments that have been done so far have been poorly designed. As Carroll has stated it: "Whereas Psychologists often perform experiments with insufficient relevance to foreign language teaching, members of the foreign language teaching profession perform studies with insufficient experimental rigor. Numerous studies are announced as 'experiments' but on examination turn out to be simply reports of new teaching procedures. Even when there is an effort to set up a true experiment, the controls are often completely inadequate."

If, as Carroll points out, neither the psychologist by himself nor the language teacher by himself has been able to do the right kind of experiment, but for different reasons, it seems to me that the

way out of this dilemma is for the teacher and the psychologist to work together on joint projects as is Scherer and Wertheimer. The language teacher should invite the psychologist into his classroom to help design and conduct the experiments that have to be done in order to gather the information that is needed to make rational decisions about improving the teaching of foreign languages.

There is another way, in addition to the three that I have talked about already, that should be explored as a means of getting answers to language learning problems. I am referring to the use of programmed, self-instructional language courses. This is a topic which is very dear to my heart.

In 1961, along with two colleagues at Indiana University, I applied for and received a Title VII National Defense Education Act Grant in order to construct and evaluate a self-instructional program in Russian. Although the grant expired more than two years ago, work on the problems with which the project was concerned is still continuing on a self-sustaining basis. By self-sustaining I mean the research is not currently being supported by a governmental agency and the students are volunteers--unremunerated financially.

The expected end products of the project, as stated in the original proposal in 1961, were: "(1) An automated program which has been tested and found capable of teaching the first semester course in Russian to high school and college students as effectively as it is now being taught by the usual classroom procedures. (2) Information which can be used to guide the development of other self-instructional programs. (3) A technique with which to explore the many factors which influence the learning and teaching of second languages."

When we began the development of our programmed course in 1961, it was our intention to prepare a course which would cover the same material that was covered in the first semester course in Russian at Indiana University. Such a procedure, we believed, would have the following obvious benefits: (1) It

would ensure us of a programmed course which was equivalent in content to a typical college course, and (2) it would provide us with convenient control or comparison groups at Indiana University with which to compare and evaluate our programmed course. Dr. John Beebe, one of the co-investigators on the project, at the start of the project was in charge of the beginning courses in Russian at Indiana University and was, therefore, very familiar with the first semester course. I was also familiar with the course, having sat in it twice as a student in the period between 1957 and 1960. Unfortunately for our purposes, however, after our project had been underway for about a year Dr. Beebe took on our departmental responsibilities and relinquished his role as supervisor of the beginning Russian courses. The new supervisor, as might have been expected, gradually effected major changes in the course, both in content and in pedagogical approach. We had already reached a point where it was impossible to alter our program, even if we had wished to do so. But, by that time, we had come to realize that it would be impossible to match our program exactly with the original Indiana University course. In order to construct what we considered to be the most efficient and effective self-instructional course, we had to add and delete material from the original course model. For these reasons then the programmed course which we developed is not identical in content with any one specific course now being taught. If it is, it is accidental, and the particular course is not known to me. Nevertheless, our course is undoubtedly quite similar in content to many first semester college courses.

The program that we have developed is neither purely traditional nor purely audio-lingual. We have attempted to combine the two approaches and derive the benefits of both. In accordance with the audio-lingual approach, the first contact that our students have with every new lexical item is to hear it pronounced on the tape by a native Russian speaker. But, in accordance with the traditional approach, after he learns to mimic the pronunciation of the item, he learns to spell it. Our students have a substantial amount of pattern-practice of structural

drill, in accordance with the audio-lingual methodology, but they are not required to practice in a vacuum. They are taught the grammatical rules before they begin the pattern practice; they do not have to discover the rules through induction. Also, they do not substitute different items in the same pattern repeatedly, but they start each response with a new pattern. And they are required to do a large amount of translating, from Russian to English and from English to Russian, both orally and in writing.

I would like to state that we were successful in accomplishing the purposes of the project. We did complete the construction of our course, we did develop some new programing techniques, and we have already carried out several brief experiments and are planning to carry out many more.

I have introduced these comments about my programmed course in Russian for two reasons. One, which may be too obvious, is that I am proud of the course and want you to know about its existence. The other is that I wish to suggest that courses like my Russian course offer what I consider to be, potentially, an extremely satisfactory way to do research in the area of language learning. Indeed, that is the primary reason that I have been willing to devote several years to the development of our Russian program -- in order to avail myself of an instrument to facilitate doing research on the teaching and learning of foreign languages. I have gone to great lengths today to point out the difficulties and problems with the use of the other approaches to researching the area of foreign language teaching. I believe that the use of a completely self-instructional program can provide a standardized and well-controlled learning situation in which to conduct such research. It remains to be seen whether the problems due to the isolation and artificiality of the well-controlled learning situation which is characteristic of programmed courses can be overcome, if not overlooked.

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